

APPLICATION SERIAL NO. 09/821,335

PATENT

REMARKS

Claims 35-59 and 78-89 are now pending in the application, with claims 35-47 having been allowed, claims 48-59 having been rejected, and claims 78-89 having been added in this Reply. Further examination and reconsideration respectfully are requested.

Examiner's Acceptance of the Drawings

The examiner's review and acceptance of the drawings is noted with appreciation.

Status of Examiner's Consideration of Applicants' Information Disclosure Statements

The examiner's prior acknowledgements of applicants' Information Disclosure Statements filed on September 20, 2001, March 3, 2003, and March 19, 2003, are noted with appreciation.

Inquiry Regarding Examiner's Notice of References Cited Form PTO-892

In the Office action of December 3, 2002, the examiner checked a box indicating that a Notice of References Cited form PTO-892 was attached. However, applicants' copy of the Office action does not include a Notice of References Cited form PTO-892. The examiner is requested to furnish a copy of this form for applicants' records in the next Office action, or to indicate that no such form existed.

Explanation of the Amendment

New claims 78-89 have been added and are supported by, for example, FIGS. 4B and 4C and corresponding portions of the specification. No new matter has been added.

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Claim Rejections – 35 U.S.C. §102

Claims 48-51, 55 and 59 are rejected under 35 U.S.C. §102 (e) as being anticipated by U.S. Patent No. 6,684,010 issued to Morris, Jr. et al. The rejection respectfully is traversed.

Morris Jr. et al. discloses a wavelength coupler/decoupler that is used for combining or separating optical beams of different wavelengths. Two optical sheets 5 and 25 shown in FIG. 1 are spaced apart by a gap. Two beams 15a, 15b enter the first sheet 5 through respective interfaces 10 and 12, and are collimated by respective diffractive elements 20 and 22. The collimated beams exit the first sheet 5, pass through the gap, are wavelength-filtered by respective wavelength filters 30 and 32 upon entering the second sheet 25, combine in the second sheet 25, and exit the second sheet 25 into the gap as a wavelength-combined beam. The wavelength-combined beam then is focused by a diffractive element 40 and exits the first sheet 5 through an interface 50.

The examiner rejected claims 48-51, 55 and 59 as being anticipated by Morris Jr. et al. However, while the examiner on page 2 of the Office action acknowledges the limitation in claim 48 of "each of the stacked optical sheets including at least one optical element replicated on a surface" (the term "replicated" was omitted in the examiner's remarks, which is believed to be an inadvertent oversight and is herein treated as such), the examiner does not cite to any part of Morris Jr. et al. disclosing this limitation. Applicants believe that Morris Jr. et al. in fact contains no disclosure of this limitation, so that the rejection of claims 48-51, 55 and 59 as being anticipated by Morris Jr. et al. must be withdrawn.

To anticipate a claim, the reference must teach every element of the claim. As set forth in MPEP § 2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. ... The identical invention must be shown in as complete detail as is contained in the ... claim."

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Applicants respectfully submit that Morris Jr. et al. does not teach every element of claim 48, and therefore fails to anticipate claim 48 or any claim dependent therefrom. Claim 48 recites, for example, "a plurality of stacked optical sheets, each of the stacked optical sheets including at least one optical element replicated on a surface." The term "replicated" is defined in the specification of the present application, as follows: "The term replication refers to a group of processes where a molding tool leaves an imprint on a workable material, such as thermoplastic, resin, organically modified silicate (ormosil) or inorganic glass. Examples of replication processes include injection moulding, hot embossing, UV embossing and casting and curing." Present application, page 8, lines 9-13).

The second sheet 25 does not include any replicated optical elements, and therefore does not anticipate claim 48. In Morris Jr. et al., the wavelength filters 30 and 32 are the only elements disclosed on the second sheet 25 on the surface adjacent to the gap. On the surface opposite the gap, no optical elements are disclosed – Morris refers to element 35 (in Fig. 1) as merely "an opposite surface 35." As is well known to one of ordinary skill in the art, wavelength filters 30 and 32 are composed of a series of thin film layers. As is also well known to one of ordinary skill in the art, such thin film layers must be deposited on the substrate in a carefully controlled deposition process. In other words, thin films such as wavelength filters 30 and 32 must be grown, and cannot be replicated as that term is defined by applicants. For example, as described in a standard reference text, "[m]odern thin-film optical filters are, however, almost entirely manufactured by vacuum deposition processes which can be classified as physical vapour deposition," H.A. Macleod, "Thin-Film Optical Filters", McGraw-Hill, New York, 1989, p. 358. A copy of this page is attached as Exhibit A.

Since the second sheet of Morris Jr. et al. does not include at least one optical element replicated on a surface, Morris Jr. et al. does not anticipate claim 48. The rejection must be withdrawn.

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Dependent claims 49-51, 55 and 59, which are dependent from independent claim 48, were also rejected under 35 U.S.C. §102(e) as being unpatentable over Morris. While Applicants do not acquiesce with the rejection of these dependent claims, which may recite additional features that further distinguish these claims from the applied reference, the rejection is moot in view of the remarks made in connection with independent claim 48, inasmuch as these dependent claims include all of the limitations of the base claim and any intervening claims. Therefore, dependent claims 49-51, 55 and 59 are also patentable over Morris Jr. et al.

Claim Rejections – 35 U.S.C. §103

Claims 52-54 and 56-58 are rejected under 35 U.S.C. §103(a) as being unpatentable over Morris. The rejection is traversed. In fact, applicants believe that independent claim 48 is not obvious over Morris Jr. et al., so that dependent claims 52-54 and 56-58, which all depend from claim 48, would not be obvious for at least this reason.

As described above in detail, the sheet 25 as disclosed by Morris Jr. et al. does not include any replicated optical elements. Wavelength filters 30 and 32 are the only elements disclosed on the second sheet 25 on the surface adjacent to the gap, but such filters are made of a series of thin film layers which must be grown on the substrate in a carefully controlled deposition process. They cannot be replicated. There is no doubt that Morris Jr. et al. does not teach replicating optical elements on the sheet 25.

While Morris Jr. et al. clearly does not teach replicating optical elements on sheet 25, a further question is whether Morris Jr. et al. suggests or motivates the replication of optical elements on a second sheet such as sheet 25. Applicants believe that Morris Jr. et al. contains no such suggestion or motivation.

A *prima facie* case of obviousness requires that three basic criteria be established. First, there must be some suggestion or motivation, either in the references

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themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. See MPEP § 2142, Eighth Edition, Rev. 2, May 2004, page 2100-108. Moreover, a prior art reference must be considered in its entirety, which is to say as a whole, including portions that would lead away from the claimed invention. See *Id.* § 2141.02, page 2100-125.

Based on Morris Jr. et al., one skilled in the art would not be motivated to include a replicated optical element on the second sheet 25. One skilled in the art would, for example, would have no reason to switch the locations of the wavelength filters 30 and 32 and the diffractive elements 20 and 22, and would even be deterred from doing so because the wavelength filters, being sensitive to incident angle, would fail to operate correctly in the beams diverging from elements 10 and 12. Furthermore, one skilled in the art would have no reason to add additional replicated optical elements onto the second sheet 25, and would even be deterred from doing so because the device of Morris Jr. et al. would then fail to operate correctly. Note that the opposite surface 35 has to be substantially flat to reflect the beams 15a and 15b. Because the device of Morris Jr. et al. would fail to operate correctly with a replicated optical element on the second sheet 25, there is no motivation to include at least one optical element replicated on the second sheet 25 of Morris Jr. et al.

Claims 52-54 and 56-58, which are dependent from independent claim 48, were specifically rejected under 35 U.S.C. §103(a) as being unpatentable over Morris. While Applicants do not acquiesce with the rejection of these dependent claims, which may recite additional features that further distinguish these claims from the applied reference, the rejection is moot in view of the remarks made in connection with independent claim 48, inasmuch as these dependent claims include all of the limitations of the base claim

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and any intervening claims. Therefore, dependent claims 49-51, 55 and 59 are also patentable over Morris Jr. et al.

The rejection of claims 52-54 and 56-58 must be withdrawn for the following additional reason. Acknowledging that Morris Jr. et al. fails to contain certain disclosure, the examiner asserts that "replicating the surface with such structure or element is well known in the art." The examiner's assertion is unsupported by Morris Jr. et al., as explained above. In view of the lack of support in Morris Jr. et al., applicants do not believe it to be appropriate for the examiner to take official notice of the claim 48 limitation that "each of the stacked optical sheets ... [include] at least one optical element replicated on a surface." Pursuant to MPEP § 2144.03, Eighth Edition, Rev. 2, May 2004, page 2100-138, applicants hereby traverse official notice and request the examiner to provide suitable documentary evidence in the next Office action.

Conclusion

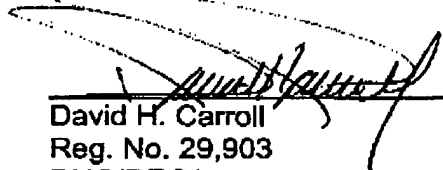
In view of the foregoing remarks, it is believed that the application is now in condition for allowance. Applicants respectfully request favorable reconsideration and the timely issuance of a Notice of Allowance. If a telephone conference would be helpful in resolving any issues concerning this communication, please contact the undersigned at (952) 253-4135.

Respectfully submitted,

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By:


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